Performance analysis based on Scoring Rubric Tool using Fuzzy Logic

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Abstract — Our main objective is to build a student performance analysis technique using scoring rubric tool and fuzzy logic. The enhancement of student learning performance and satisfaction represents one of the main objectives of educational systems. In order to be able to tai- lor the teaching process according to the needs and preferences of each student, teachers have to conduct accurate evaluations of the different competencies of students, which can naturally differ in terms of level of knowledge, interest, social background, and level of motivation We are proposing a student performance evaluation method using Fuzzy Inference .we calculate the grade of student performance. And we send mail to individual student.

Keywords:-Fuzzy,Rubric,RubricTool,FuzzyLogic,Performance,StudentExtraActivity, Parameters.

I.   INTRODUCTION

The enhancement of student learning performance and satisfaction represents one of the main objectives of educational systems. In order to be able to tailor the teaching process according to the needs and preferences of each student, teachers have to conduct accurate evaluations of the different competencies of students, which can naturally differ in terms of level of knowledge, interest, social background, and level of motivation.The word performance **analysis** in learning refers **to numerous** tools the educators use **to live** and document **the abilities no inheritable**, learning progress, **educational** grades etc by the students. The popular tools are unit classical aggregation method, rating the rubrics tools . The aggregation technique was the methodology used for grading student performance. This method evaluates overall performance of the students over a period of semester or one year, but does not reflect on continuous performance of students. On the other hand the continuous evaluation methods which are becoming more popular these days, evaluate performance on daily or weekly basis and give early indication of performance for both student and faculty.This provides the heap of scope for improvement within the performance at each stage of learning. The scoring rubric tool designed for different courses are commonly used these days for both formative and summative assessments. A rubric is designed in such a way as to evaluate attainment of learning objectives set by course experts against a set of criteria at each stage of learning. For different courses different scoring rubrics are designed, for example a rubric for learning computer language is different from that of music or dance.

II.LITERATURE SURVEY

Intelligent expert systems were proposed for evaluation. The complicated matching operation of answer scripts to evaluate student performance is overcome in and more generalized methods are proposed. Fuzzy based cricketer performance evaluation model presents international rank prediction of a cricketer and also the effect of each input parameter on performance .The drawbacks of conventional method of evaluation performed in universities is discussed in also a new method using fuzzy logic considering student attendance, internal and external marks as input parameters is

implemented. A personalised student analysis technique is conferred compared to the rear propagation and standard applied mathematics ways in each student is exclusive and fuzzy systems will create choices and evaluate student performance along with students learning progress In the authors predict the performance of the students based on their previous performance.

III.EXISTING SYSTEMS

He needs to bear in mind all the commands that square measure tough. He has to remember all the commands which are difficult. It is limited to a single system. A user who wants only to have some goals for the web application are identified, and the categories of users are defined. In the necessities gathering part, the content and purposeful necessities square measure listed and interaction eventualities written from end-user's point-of-view square measure developed.
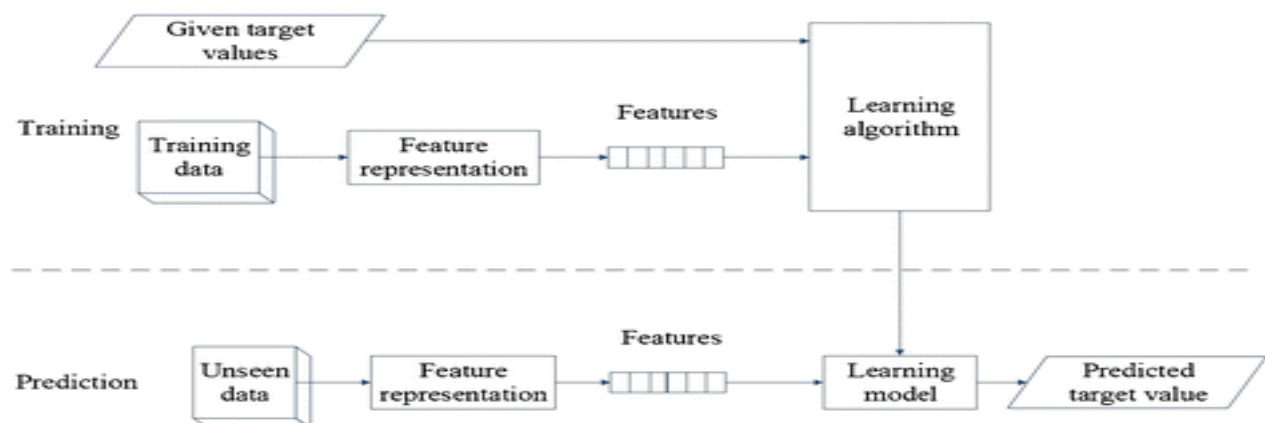
IV.LIMITATIONS

- It's time intense method because the user   needs to sort the dbase commands.

- It is limited to a single system.

V.DISADVANTAGES

- Tends to be quite time consuming and do not provide very detailed information.

VI.PROPOSED SYSTEM

We are proposing a student performance evaluation method using Fuzzy logic system for students. We are proposing a student performance evaluation method using Fuzzy Logic course by students FIS. The five inputs identify, understand, apply, analyze and design/create are fuzzified using Mamdani Fuzzy Inference System. With the help of fuzzy rules the predicted results are expressed in linguistic variables.

## VII.ADVANTAGES OF PROPOSED SYSTEM

- Provides meaning and specific feedback on multiple dimensions.
- Scoring tends to be a lot of consistent across students and grades.

- Easier for the teacher to share with students and oldsters regarding sure strengths and weaknesses.
- Helps students to raised perceive the character of quality work.

VIII. PROPOSED SYSTEM FEATURES

- User friendliness is provided within the application with varied controls..
- The system makes the general project management a lot of easier and versatile.
- Vast amount of data can be stored.
- There's no risk of information direction at any level whereas the project development is beneath method.

IX. SYSTEM ARCHITECTURE
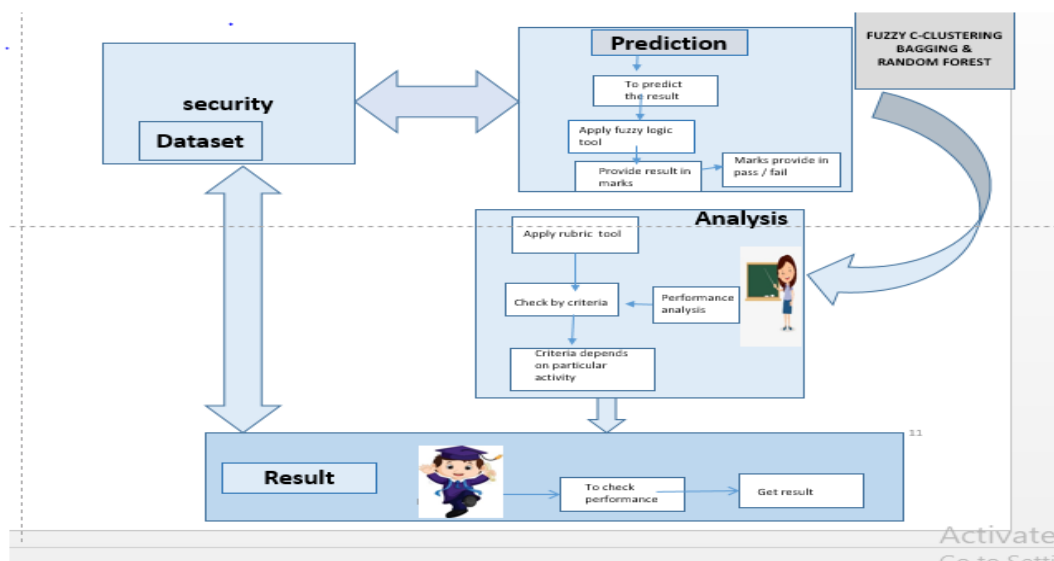
X. PROJECT IMPLEMENTATION

On the Project of fuzzy logic we get following results. The Figure shows Active rules and performance value for corresponding inputs and output:
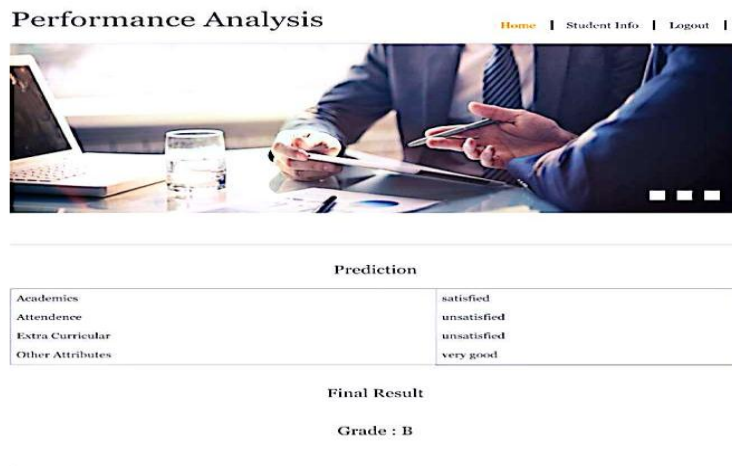
Figure A

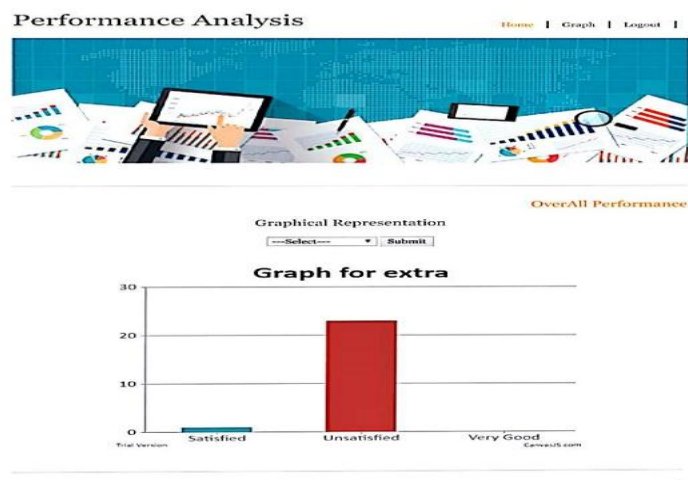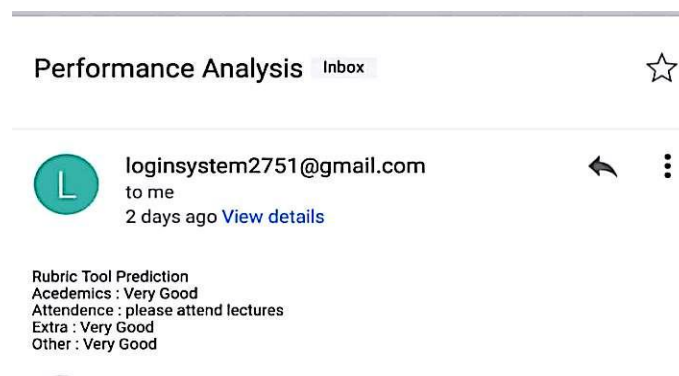On the project of Robric tool we get following results Fig(B)

Figure B

On the project given to the final output is give the solution to student performance and send the report to email for each student . show in the fig(C)

Fig(C)

XI ALGORITHM

Algorithm
1.Support Vector Machine:

This algorithm is used to initially classify the students just to know in which category the students fall. This will be helpful to know the progress of each student and the things which need to be taken care for.
2.Random Forest Algorithm:

This algorithm is used to predict the students performance with the help of previous data and also to give suggestions to the students regarding their improvements.
3.AES Algorithm for Encryption:

This algorithm is used to keep the database safe. With the help of this algorithm we will encrypt the data and keep it safe from any intruder..

XII METHODOLOGIES

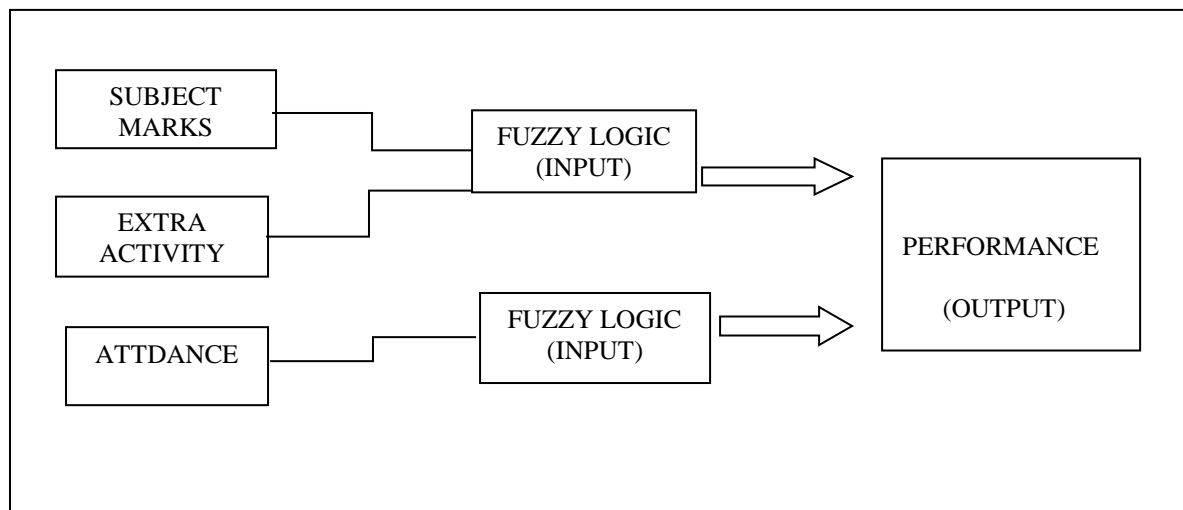Fuzzy Methodology involves the steps as shown in Fig. 1:

Fig:1 Fuzzy Methodology Diagram

Fuzzy methodology diagram Here, there are three input variables.
Then we two output variables that ended to performance. Academic performance evaluation with fuzzy logic involved three steps:
1. Fuzzification of various examination outcomes and output performance value.
2. Determination of relevance rules and inference method.
3. Defuzzification of performance value.

RUBRIC TOOL:
It is much better for rubrics to be edited prior to grading and assignment rather than in the middle of grading, forcing you to regrade assignments.Create a table and list the measurable grading criteria in the first column with optional weights.show in following exampleList the range for performance quality in the first row (for example, "Exceeds expectations", "Meets expectations", Approaches expectations,

Criteria	Exceeds Expectations	Meets Expectations	Approaches Expectations	Does Not Meet Expectations
Criterion #1	Descriptor	Descriptor	Descriptor	Descriptor
Criterion #2	Descriptor	Descriptor	Descriptor	Descriptor
Criterion #3	Descriptor	Descriptor	Descriptor	Descriptor
Criterion #4	Descriptor	Descriptor	Descriptor	Descriptor

and "Does not meet expectations) with an accompanying points scale.In each box, write descriptors that represent each level of performance.

XIII.CONCLUSION

In this project, the case studies and the results obtained show that the use of Machine Learning, more specifically with supervised classification learning, is very useful for the creation of help tools that can monitor and predict student performance. In this paper we have proposed a fuzzy based student's performance evaluation model. At early stages of learning, students can get feedback from the rubric and improve the skills and hence the performance. The model is flexible in terms of assigning importance to different inputs, modifying rules depending upon the requirement/need of the unit studied. We would like to test this system of evaluation in future for continuous evaluation as well as semester end evaluation of students performance by adding few more rules.

REFERENCE

[1] Bloom, B.S. (Ed.), Engelhart, M.D., Furst, E.J., Hill,W.H., & Krathwohl, D.R. (1956)."Taxonomy of educational objectives: The classification of educational goals", Handbook 1: Cognitive domain.
[2] David R. Krathwohl. "Theory Into Practice",Volume 41, Autumn 2002 The Ohio State University.
[3] Brenda Sugrue, October, 2002 " Problems with Bloom's Taxonomy".Zadeh, L.A. 1965, "Fuzzy sets and systems", In J. Fox, editor, System Theory.New York: Polytechnic Press, pp. 29-39.
[4] Biswas, "An application of fuzzy sets in students' evaluation" 1995, Fuzzy sets and systems pp.187-194.
[5] Shyi-Ming Chen, Chia-Hoang Lee, "New methods for students' evaluation using fuzzy sets",

Fuzzy sets and Systems 1999, pp.209-218.

[6] Singh, G., Bhatia, N., and Singh, S. "Fuzzy Logic Based Cricket Player Performance Evaluator".IJCA Special Issue on "Artificial Intelligence Techniques - Novel Approaches &Practical Applications"2011, pp. 11-16.

[7] Meenakshi N., Pankaj N., "Application of Fuzzy Logic for Evaluation of Academic Performance of Students of Computer Application Course", IJRASET 2015. Volume 3 Issue X, October 2015 ISSN:2321-9653 .

[8] R. Holte, "Very simple classification rules perform well on most commonly used datasets," Machine Learning, vol. 11, no. 1, pp. 63–90, 1993.

[9] A. Stimpson and M. Cummings, "Assessing intervention timing in computer-based education using machine learning algorithms," Access, IEEE,vol. 2, pp. 78–87, 2014.

[10] E.-S. M. El-Alfy and R. E. Abdel-Aal,"Construction and analysis of educational tests using abductive machine learning," Computers and Education, vol. 51, no. 1, pp. 1 – 16, 2008.

[11] M. Mayilvaganan,D. Kalpanadevi ,"Comparison of Classification Techniques for predicting the performance of Students Academic Environment," in International Conference on Communication and Network Technologies(ICCNT), 2014.

[12] Zadeh, L.A. 1965, "Fuzzy sets and systems", In J. Fox, editor, System Theory. New York: Polytechnic Press, pp. 29-39.

[13] Biswas, "An application of fuzzy sets in students' evaluation" 1995, Fuzzy sets and systems pp.187-194